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CHARLES H. KEENE, M.D.
University of Buffalo, Buffalo, N. Y.

Assistant Editors

GERTRUDE E. CROMWELL, R.N.
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STUDY OF PROCEDURES USED FOR SCREENING ELEMENTARY SCHOOL CHILDREN FOR VISUAL DEFECTS: REFERRALS BY SCREENING PROCEDURES VS. OPHTHALMOLOGICAL FINDINGS

MARIAN M. CRANE, M.D., RICHARD G. SCOBEE,* M.D., FRANKLIN M. FOOTE, M.D., and EARL L. GREEN, Ph.D.

This study was carried out with the joint support of the National Society for the Prevention of Blindness, the Children's Bureau of the Federal Security Agency, the Division of Health of the State of Missouri, the St. Louis Board of Education, the Dept. of Ophthalmology, Washington Univ. School of Medicine, and the Office of Naval Research.

The primary purpose of this study† was to determine the relative efficiency of certain procedures used in screening elementary school-age children for visual defects, as measured by the success of the procedures in identifying those students whom ophthalmological examination showed to be in need of eye care.

Methods

The general plan and methods of the study have been presented in earlier publications[1,2] and will be fully described in a later report. They will be reviewed here only briefly.

The study was conducted in the public elementary schools of St. Louis between February 1948 and May, 1949. Subjects of the study were 609 sixth-grade students and 606 first-grade students from 14 elementary schools.

Each student was given a complete ophthalmological examination. The ophthalmologist's clinical judgment as to whether or not the student needed to be referred for eye care is the criterion against which the results of the screening procedures are evaluated.

The screening procedures selected for study were administered to the students by three different testers: a technician who tested

*Deceased

†Republished from Fall 1952 issue of the *Sight Saving Review* and November, 1952 issue of *American Journal of Public Health.*

*In an earlier report[2] a third group is described as "theoretical referrals." These are included here in the "non-refer" group.

all of the students included in the study; the nurse serving the school attended by the student being tested; and the student's classroom teacher. As used in reporting the results of the testing, the term "nurse" represents a composite of the findings of 12 different nurse testers, and "teacher" represents the findings of 58 different classroom teachers.

Every sixth-grade student was tested with the following procedures by each of the testers listed for that procedure:

Judgment. Teacher.

Snellen Test. Teacher, nurse, technician.

Massachusetts Vision Test. Nurse, technician.

Keystone View Company Telebinocular Test. Nurse, technician.

Bausch and Lomb Ortho-Rater Test. Nurse, technician.

American Optical Company Sight-Screener Test. Nurse, technician.

Near Vision Test. Nurse, technician.

The procedures and testers for first-grade students were the same as for sixth-grade students, except that first-grade students did not receive the Ortho-Rater and Sight-Screener Tests. Some of the test charts used in these two procedures are designed for subjects who have more ability to read than is to be expected in first grade.

On the basis of his performance on a given test, each student was classed as either a referral or non-referral by that test.

It is important to note that there are at least three factors that might affect the relative efficiency of the different testers: (1) professional background, (2) training and experience in the testing procedures, and (3) previous acquaintance with the students tested. The technician was given more preliminary training in administering the tests than the nurses, and the teachers had the least training. This was planned, intentionally, to simulate the amounts of training which, in a school vision-testing program, it would probably be practicable to provide for (a) one tester for many schools, (b) one tester for each school, or (c) each classroom teacher. The individual who tests many students naturally acquires more experience in the course of the program than the one who tests a smaller number and the same was true in this study.

Clinical examinations and screening tests were administered as follows:

Ophthalmological Examination. Three ophthalmologists working as a team gave each student a complete eye examination, including refraction under cycloplegia. One of the ophthalmologists

evaluated all of the findings and recorded a clinical judgment for each student: "refer" if there was need for eye care, "non-refer"* if special eye care was not needed.

Students referred by a screening procedure who are also referred by the ophthalmologist are considered "correct referrals." Those referred by the screening procedure but not by the ophthalmologist are considered "incorrect referrals" or "over-referrals." Those referred by the ophthalmologist but not by the screening procedure are considered "under-referrals"—students who should be referred but who were "missed" by the screening test.

Teacher Judgment. Before she administered the Snellen Tests the classroom teacher recorded for each of her students whether or not she thought he needed an eye examination. These judgments were based on general observation, but in each school, before the judgments were recorded, the teachers met with a physician or nurse on the study staff for a discussion of the common signs and symptoms of eye trouble. A teacher recorded judgments on all the students in her class within a period of a few days, usually on a single day.

There are other ways of obtaining and using the teacher's judgment in a screening program. The data obtained on the accuracy of Teacher Judgment in this study are not necessarily applicable to judgments obtained from teachers in other ways or under other conditions.

Snellen Test. The E symbols on the Massachusetts Vision Test chart were used for tests of visual acuity at a distance of 20 feet. Since these symbols are constructed according to the principles of the Snellen Chart, it was assumed that the test would be the same as a test with a correctly placed and properly lighted E-symbol Snellen Chart.

Massachusetts Vision Test. The procedure followed in administering the Massachusetts Vision Test was that recommended by the Massachusetts State Department of Public Health except that, instead of discontinuing the test when a student failed one part of it, the complete test was given to every student.

Near Vision Test. A test of visual acuity at the reading distance was made by asking the student to read 3 test lines from a chart placed at a distance of 14 inches from the eyes. For sixth-grade students the test lines consisted of 6 letters each from the 14/14, 14/17, and 14/23 lines of the Lebensohn Chart. First-grade students were asked to indicate the position—right, left, up or

*In an earlier report[2] a third group is described as "theoretical referrals." These are included here in the "non-refer" group.

down—of 4 symbols each in the 14/14, 14/17, and 14/21 lines of the Guibor Chart.

Ortho-Rater, Sight-Screener, and Telebinocular Tests. The manufacturers' instructions were followed in the Ortho-Rater, Sight-Screener, and Telebinocular testing procedures. The tests of color vision which these procedures include were omitted since color-blindness is not a cause for referral for eye care.

Combination of Procedures. The effect of combining certain of the screening procedures was examined. The combinations studied were: Teacher Judgment and the Snellen Test; Teacher Judgment, Snellen Test and Near Vision Test; Snellen Test and Near Vision Test.

STANDARDS FOR REFERRAL

Some of the standards used in this study for interpretation of measurements obtained on the tests in terms of referral or non-referral have been developed on the basis of data made available for the first time in the study. No standards for referral had been established previously for certain of the procedures. Where standards already existed, these have been applied in interpretation of the study data. If evidence indicated that a standard based on the new data available from the study would give a higher degree of correspondence between the screening test and the ophthalmologist's referrals than was obtained with the pre-existing standard, the results of using both the old and the new standards are presented.

For the Snellen Test two frequently employed standards, or "cut-off" scores for referral, have been used. These are designated as the "high" standard and the "low" standard. A "high" and a "low" standard were used for the Near Vision Test also.

For the Massachusetts Vision Test the standard for referral used is that recommended by the Massachusetts State Department of Public Health.

The manufacturers of the Ortho-Rater and the Sight-Screener have made no recommendations as to how the measurements obtained on these tests should be interpreted. Standards for referral have therefore been developed on the basis of the distributions of test measurements obtained in this study. A later report of the study will give further detail as to how these standards were established.

Screening Procedure	Measurements Acceptable for Non-Referral	
SNELLEN TEST	**High Standard**	**Low Standard**
Right eye	20/20	20/30 or better
Left eye	20/20	20/30 or better
NEAR VISION TEST	**High Standard**	**Low Standard**
Right eye	14/14	14/17 or better
Left eye	14/14	14/17 or better
Both eyes	14/14	14/17 or better
MASSACHUSETTS VISION TEST		
E symbols		
Right eye	20/20	
Left eye	20/20	
Plus sphere	Unable to read 20/30 line with either eye; or, unable to read 20/30 line with one eye, reads 20/30 line but unable to read 20/20 line with other eye.	
Muscle balance		
Far vertical	Through window	
Far lateral	Through house	
Near lateral	Through panel	

ORTHO-RATER	Measurement	True Value
Far Point		
1 Phoria, vertical	3–8	1.0 left hyperphoria—1.0 right hyperphoria*
2 Phoria, lateral	2–13	6.66 esophoria—4.33 exophoria*
3 Acuity, both	10–15	20/20 or better
4 Acuity, right	10–15	20/20 or better
5 Acuity, left	10–15	20/20 or better
6 Depth	B–H	†
Near Point		
1 Acuity, both	10–15	20/20 or better
2 Acuity, right	10–15	20/20 or better
3 Acuity, left	10–15	20/20 or better
4 Phoria, vertical	3–8	1.0 left hyperphoria—1.0 right hyperphoria*
5 Phoria, lateral	3–14	7.5 esophoria—9.0 exophoria*
SIGHT-SCREENER		
Far Point—Red Series		
1 Binocular vision	4 letters	Simultaneous binocular vision
2 Acuity, right	20/20–20/10	20/20 or better
3 Acuity, left	20/20–20/10	20/20 or better
4 Acuity, both	20/20–20/10	20/20 or better
5 Depth	D–E	90%–105%†
6 Muscle balance, vertical	2–6	1.0 right hyperphoria—1.0 left hyperphoria*
7 Muscle balance, lateral	8–20	7.0 esophoria—5.0 exophoria*
Near Point—Black Series		
1 Binocular vision	4 letters	Simultaneous binocular vision
2 Acuity, right	20/20–20/10	20/20 or better
3 Acuity, left	20/20–20/10	20/20 or better
4 Acuity, both	20/20–20/10	20/20 or better
5 Depth	D–E	90%–105%†
6 Muscle balance, vertical	2–6	1.0 right hyperphoria—1.0 left hyperphoria*
7 Muscle balance, lateral	7–24	8.0 esophoria—9.0 exophoria*
TELEBINOCULAR		
Far Point		
2 Vertical imbalance	1–1	.5 right hypertrophia—.5 left hyperphoria*
3 Lateral imbalance	8–10	1.75 esophoria—3.25 exophoria*
4 Fusion	3, or 4 then 3	Fusion achieved
5 Usable vision right	5–10	20/25 or better
6 Usable vision left	5–10	20/25 or better
7 Stereopsis	9–12	†
Near Point		
10 Lateral imbalance	4–6	2.81 esophoria—4.70 exophoria*
11 Fusion	3, or 4 then 3	Fusion achieved
12 Usable vision right	13–22	20/25 or better
13 Usable vision left	13–22	20/25 or better
14 Usable vision both	13–22	20/25 or better
Far Point		**Study Standard—Sixth Grade**
2 Vertical imbalance	2–2	1.0 right hyperphoria—1.0 left hyperphoria*
3 Lateral imbalance	7–11	4.25 esophoria—5.75 exophoria*

*Muscle balance (phoria) is measured in prism diopters.

†True value for measurements of depth are available only for the Sight-Screener test of depth, which is based on the Shepard-Fry Scale.

	Measurement (Cont'd)	Manufacturer's Standard
4 Fusion	3, or 4 then 3	Fusion achieved
5 Usable vision right	8–10	20/18 or better
6 Usable vision left	8–10	20/18 or better
7 Stereopsis	10–12	†
Near Point		
10 Lateral imbalance	3–7	6.56 esophoria—8.44 exophoria*
11 Fusion	3, or 4 then 3	Fusion achieved
12 Usable vision right	14–22	20/22 or better
13 Usable vision left	14–22	20/22 or better
14 Usable vision both	14–22	20/22 or better

Study Standard—First Grade

The same as sixth grade study standard with the following exceptions:

Far Point		
5 Usable vision right	4–10	20/28 or better
6 Usable vision left	4–10	20/28 or better
Near Point		
12 Usable vision right	11–22	20/28 or better
13 Usable vision left	11–22	20/28 or better
14 Usable vision both	11–22	20/28 or better

*Muscle balance (phoria) is measured in prism diopters.

†True values for measurements of depth are available only for the Sight-Screener test of depth, which is based on the Shepard-Fry Scale.

For the Telebinocular Test the standard for referral recommended by the manufacturer is used. A student is referred if he has any measurement outside of the range shown as "expected" or "doubtful" on the record forms supplied with the instrument. A second interpretation of Telebinocular measurements was based on a standard developed in the same way as the standards for the Ortho-Rater and Sight-Screener. This has been designated as the "Study" standard.

With the combinations of screening procedures, a student is classed as a referral if he is referred by any of the tests included in the combination.

The standards for referral can best be shown in terms of the measurements or scores that are accepted as evidence of satisfactory performance. Any score outside of this range is considered unsatisfactory and an indication for referral. If a student obtains an unsatisfactory score on any part of a procedure, he is classed as a referral by that procedure.

Results

Table I and the figure show the per cent of students correctly referred and the per cent incorrectly referred by the screening procedures as administered by the specified testers. A "correct referral" is a referral by a screening test of a student whom the ophthalmologist found to need referral. An "incorrect referral" is referral of a student who is not referred by the ophthalmologist.

At the top of Table I is shown the per cent of students referred by the ophthalmologist. Below in the same column are shown the correct referrals by the screening procedures. The next column shows incorrect referrals. Thus we see that the ophthalmologist referred 31 per cent of the sixth-grade students. The nurse's Ortho-Rater Test referred correctly 25 per cent, about five-sixths of those it should have referred. The difference between 31

per cent and 25 per cent represents under-referrals—6 per cent of the students tested. At the same time 32 per cent of the students were referred incorrectly. By adding 25 per cent and 32 per cent we find that with this procedure the nurse referred 57 per cent of the students she tested, and that slightly less than half of those she referred actually needed care.

In the figure are two panels, one for sixth grade and one for first grade. The width of a panel represents the total number—100 per cent—of the students tested in that grade. A vertical "zero" line divides each panel so that the portion to the left corresponds to the students referred by the ophthalmologist, while the portion to the right corresponds to the remaining students. Horizontal lines represent the referrals by different screening procedures. The part of the horizontal line on the left of "zero" shows the students referred by both the screening procedure and ophthalmologist; the part of the horizontal line on the right side of "zero" shows the students referred—incorrectly—by the screening procedure but not by the ophthalmologist.

For example, since the ophthalmologist referred 31 per cent of the sixth-grade students, 31 per cent of the total space in the sixth-grade panel is to the left of "zero" and 69 per cent is to the right. The broken line representing referrals by the Ortho-Rater as used by the nurse, extends to the left to the 25 per cent point; this indicates that 25 per cent of all students were referred correctly by that procedure—that is, the same 25 per cent were referred both by the ophthalmologist and by the test. The space between the left edge of the panel—31 per cent—and the left end of the line—25 per cent—shows the students who should have been, but were not referred; this means the test missed 6 per cent, or nearly a fifth of the 31 per cent who should have been referred. To the right of "zero" the line extends to the 32 per cent point, showing that this procedure incorrectly referred 32 per cent of all students. That is, from the students whom the ophthalmologist did not refer, the test referred a group amounting to 32 per cent of all students. Relating the right-hand part of the line to its total length—representing the 57 per cent referred—it is clear that over half the students referred by this procedure were incorrect or "over" referrals. Finally, of course, the space between the right-hand end of the line and the margin represents the students who were not referred by either the screening procedure or the ophthalmologist.

The data are of course subject to sampling errors but indicate the degree of agreement found between the ophthalmologist and the testing procedures.

TABLE I

Per Cent of Students Correctly and Incorrectly Referred by Screening Procedures

Test	Tester	Per cent of Sixth Grade Students Referred		Per cent of First Grade Students Referred	
		Correctly	Incorrectly	Correctly	Incorrectly
Clinical Examination	Opthalmologist	31		23	
Ortho-Rater	Nurse	25	32	*	
	Technician	24	29	*	
Sight-Screener	Nurse	23	31	*	
	Technician	24	23	*	
Telebinocular (Mfr.'s standard)	Nurse	23	38	20	51
	Technician	24	33	18	29
Telebinocular (Study standard)	Nurse	24	33	17	37
	Technician	23	27	15	18
Snellen (high std.) + Judgment and Near Vision (high std.)	Teacher and Nurse†	23	28	18	35
Snellen (high std.) + Judgment	Teacher	21	24	16	25
Massachusetts Vision	Nurse	18	12	15	16
	Technician	20	11	15	16
Snellen (high std.) and Near Vision (high std.)	Teacher and Nurse‡	20	15	16	24
	Technician	18	8	14	13
Snellen (high std.) and Near Vision (low std.)	Teacher and Nurse‡	17	7	15	11
	Technician	14	3	11	7
Snellen (high std.)	Nurse	14	6	12	8
	Technician	14	2	11	7
	Teacher	15	6	13	9
Judgment	Teacher	13	19	10	19
Near Vision (high std.)	Nurse	13	11	13	20
	Technician	11	7	12	8
Snellen (low std.)	Nurse	6	1	5	0
	Technician	7	1	4	1
	Teacher	8	2	4	1
Near Vision (low std.)	Nurse	7	2	6	4
	Technician	5	1	4	1

*Not administered to first grade.

†Snellen and Judgment by Teacher, Near Vision Test by Nurse.

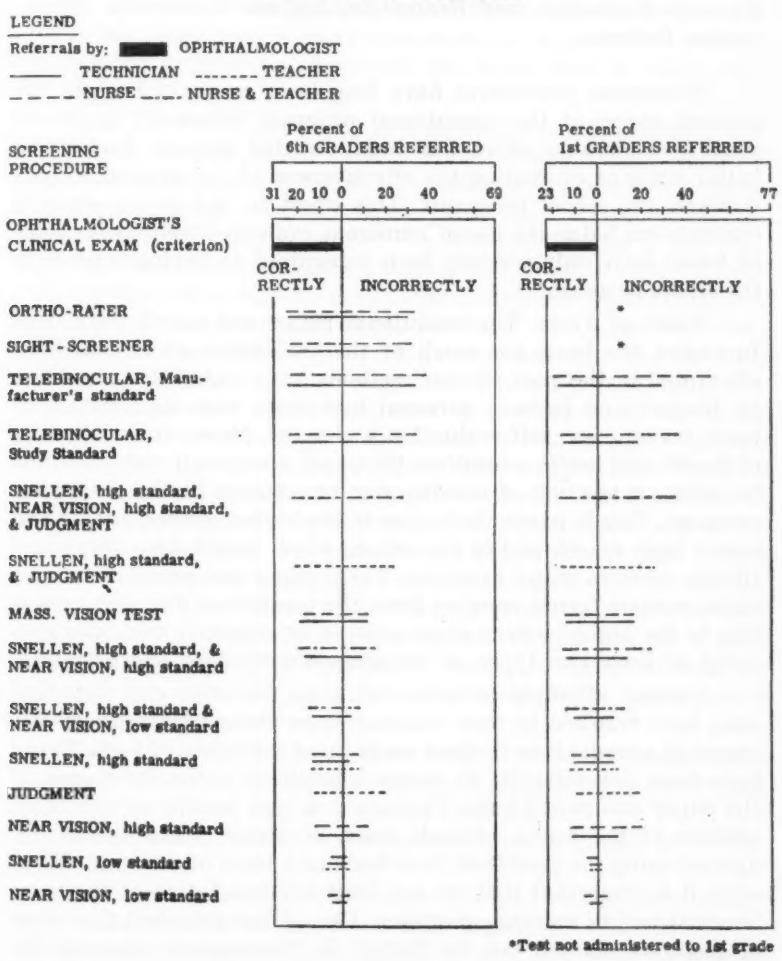
‡Snellen by Teacher, Near Vision Test by Nurse.

Examination of Table I and the figure shows that there is a low degree of correspondence between the referrals by any of the screening procedures and the referrals by the ophthalmologist.

In general, the greater number of correct referrals, the greater the number of incorrect referrals. Procedures that refer only a small proportion of the students referred by the ophthalmologist give relatively few incorrect referrals, but those that refer more than two-thirds of the students who really need care give a high proportion of incorrect referrals. Also the greater the number of measurements involved in a procedure, the higher is the proportion of both correct and incorrect referrals.

FIGURE 1

STUDENTS CORRECTLY AND INCORRECTLY REFERRED BY SCREENING PROCEDURES



(Continued in February, 1953)

REFINING THE HEALTH EDUCATION TEST

Development and Trial Application

J. KEOGH RASH, HS.D.

Chairman, Department of Health and Safety, School of Health, Physical Education, and Recreation, Indiana University, Bloomington, Indiana.

Evaluation procedures have long been recognized as an important phase of the educational program. However, in recent years considerable effort has been directed toward discovering better ways of evaluating the effectiveness of our programs, particularly the school programs. This effort to find better ways to evaluate has led to the use of numerous evaluated techniques, some of which have only recently been recognized as having a place in the school program.

Kinds of Tests. The traditional paper and pencil tests have furnished the basis for much of the evaluation which has been attempted in the past. Newer methods have included observation by teacher and parent; personal inventory, such as practice or habit inventories; self-evaluation scales, etc. However, in the area of health and health education, the paper and pencil tests continue to occupy a position of considerable importance in the evaluation program. This is particularly true in the higher grades, junior and senior high school, and in the college where health knowledge justifiably receives major attention. These paper and pencil tests have taken various forms, ranging from the traditional discussion question to the highly refined short answer, or objective test, and covering at least two types of learning—knowledges and attitudes.

Various attempts to arrive at valid, reliable, and objective data have resulted in tests ranging from those consisting of elements of a single type to those made up of a battery of tests. There have been few attempts to measure health practices by means of the paper and pencil tests. Perhaps it is also worthy of note that authors of the health attitude tests, or scales, warn specifically against using the results of these tests as a basis of marking. However, it is important that we not limit our conception of the term "evaluation" to marking purposes. One of the principal functions of tests, as pointed out by Patty,[1] is "to improve learning for health." Efforts to improve learning for health will involve at once

1. Patty, W. W., "Uses for Health Education Tests," *The Journal of School Health* 19:58-63, March, 1949.

the evaluation of teaching as well as the evaluation of learning. The extent to which the expected outcomes do appear as outcomes will bear a very close relationship to the effectiveness of the teaching. To this extent, then, an evaluation of outcome becomes, in reality, an evaluation of teaching.

To the extent that paper and pencil tests (particularly short answer tests) may serve as an important tool in the whole evaluation process, it becomes important that these tests be valid, reliable, and objective.

Need for Test Refinement. It is generally recognized that first attempts to construct good tests are often disappointing. In spite of all precautions, such defects as ambiguity, vocabulary burden, non-discrimination (too easy or too hard), lack of specificity, imbalance, etc., tend to appear upon the first applications of the test. This fact has served to impress testors that there is need for refining any test which may be used in more than one application. One of the chief characteristics of standardized tests, produced commercially, is that they are more highly refined than the common teacher-made tests. In many instances, this is about the only advantage such a test might have over the teacher-made test since the latter can be aimed more specifically at the outcomes desired in that particular situation. Another advantage of the teacher-made test is that it might include better balance for the intended use as well as greater specificity concerning the subject matter.

It is agreed that the teacher will not ordinarily use a test repeatedly, yet at the same time, we must recognize that the important outcomes in a course do not change radically from semester to semester. In view of this, the construction of a test for a particular course or purpose becomes, in reality, a matter of improving upon previous tests. To this extent *much test construction becomes test refinement.*

Steps in Developing the Health Education Test. It is generally accepted that there are at least seven distinct steps in developing a refined test. These may be stated as follows:

1. Determine instructional objectives, or outcomes to be tested.

2. Prepare a table of specifications, or test outline, in harmony with the instructional objectives and emphasis (balance).

3. Prepare test items in harmony with the table of specifications.

4. Prepare directions, key, and arrange the mechanical features of the test.

5. Administer the trial application.
6. Refine the test in light of the results of the trial application.
7. Administer the refined test.

For the purposes of this discussion, it is assumed that steps 1 to 4 have been carried out and that we have what appears to be a good test (face validity). Consideration is now given to the process of refining or improving the test.

Steps in Refining the Health Education Test. At least six steps are necessary in refining the health education test. These are:

1. Trial application.
2. Statistical treatment for measures of central tendency and of distribution.
3. Determine reliability coefficient.
4. Item analysis.
5. Eliminate or revise items.
6. Establish norms.

Trial Application. The trial application should provide enough cases to allow for adequate sampling of students. Furthermore, the tests should contain many more items than needed in the refined test (probably twice the number). It is important to remember that the purpose of the trial application is to *test* the *test,* not the student. It has been variously estimated that three hundred to five hundred cases gives an adequate number for refinement purposes. This, of course, depends on the use to be made of the test. If it is to be used locally, fewer cases will give an adequate sampling of the population to be tested than will be the case for a test which is to be used on a national scale.

In order to make the results of the trial application useful, the characteristics of the "trial" application should be as follows:

1. The group is typical of the group for which the test was made.
2. The group is of varying abilities, ideally following a "normal distribution" for a group of the kind for which the test was made.
3. Everyone should complete the tests.
4. The test should be administered under controlled conditions.

Statistical Treatment. Statistical treatment of the data should include determining the simple measures of central tendency (mean, median, and mode) and of distribution (range and standard deviation). The use of these data will be determined, in part, by the method of determining the reliability. However, in them-

selves, these data may be used to give some idea of the difficulty of the test, and of the distribution of scores.

The Reliability Coefficient. The reliability coefficient of the test may be determined in a number of ways. Perhaps the most satisfactory method, since it involves only the use of statistics which are readily attainable, is a simplified form of the Kuder-Richardson formula* which reads—

$$r = \frac{N - \frac{M(N - M)}{6^2}}{N - 1}$$

where 6 = standard deviation
N = number of items in the test
M = mean of the test scores

It is worthy of note that this formula may ordinarily be expected to give a conservative coefficient of reliability, if not an under estimate.

A second method of determining the reliability coefficient of the test may be by the use of the Pearson r which involves the correlation of either (1) chance halves of the test, (2) equivalent forms of the test, or (3) repeated applications of the test (test, re-test). If the chance-halves method is selected, a more accurate estimate of the reliability of the whole test is secured through the application of the Spearman-Brown Prophecy Formula:

$$r = \frac{2\, r_{1 \cdot 2}}{1 + r_{1 \cdot 2}}$$

r = the reliability coefficient of the total test
$r_{1 \cdot 2}$ = the correlation between the scores on the halves of the test as represented by the Pearson r

Other things being equal, the longer the test the greater the reliability. A reliability coefficient of .90 or better is highly desirable if the test is to have more than local use.

The remaining steps in refining the health education test will be discussed in an article which is to appear in the *Journal* at a later date.

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*This formula was developed by the simple procedure of carrying out the indicated operations in the Kuder-Richardson formula and then further reducing the fraction to the form presented here.

A second article by Dr. Rash on defining the *"Health Education Test,"* will appear in the February Journal.

BASIC ISSUES IN SCHOOL SEX EDUCATION

HOWARD S. HOYMAN, ED.D.
Professor of Health Education
University of Illinois, Urbana, Illinois

For many years a sentimental-myth approach was used in providing sex education for children and youth in the United States. Sex education was considered to be primarily a family task. The job of the school, church and community was to aid parents by sharing responsibilities for the character development and religious training of boys and girls. The general tendency was to stress ideals, innocence and moral conduct and to ignore the so-called "facts of life." This approach, sometimes called "the conspiracy of silence," has been criticized severely because it usually started and stopped with the birds-bees-and-flowers and the story of the stork. Many thoughtful persons now believe the sentimental-myth approach to sex education has failed. They consider it an inadequate, and even harmful, way to prepare boys and girls for teenage living and for modern marriage and family life.

In recent years a more scientific-biologic type of sex education has been advocated, stressing factual information about human mating and reproduction. It has been argued that neither innocence nor ignorance of sexual facts will protect youth or prepare them for happy, successful lives. Considerable doubt has arisen that parents can provide a satisfactory type of sex instruction for their children. So schools are now being urged to include modern sex education for both boys and girls as an integral part of the curriculum.[1]

School Sex Education Needed

The schools can and should play their part in providing proper sex education for young people. But there is no well-charted road for schools to follow in developing a defensible type of sex education. Consequently, we will do well (1) to examine all theories of sex education with critical care and (2) to avoid carefully glib solutions for the complex problems that have to be faced in developing sex education in schools.[2] Educators not only need to con-

1. For a summary of the Catholic point of view see: Howard Witman. *Let's Tell the Truth About Sex.* New York: Pellegrini & Cudahy, 1948, pp. 14-16, 161-167. Fulton J. Sheen, "Sex and Love of God," Collier's, Vol. 123 (January 29, 1949). pp. 11, 66. "Statement by Catholic Bishops in the United States on Education of Children." New York Times, November 19, 1950, p. 44.

2. L. E. Leipold, "The Teacher Must Learn First in Sex Education," The Nation's Schools, Vol. 43 (March 1949), pp. 33-34.

sider what should be included, but also what should be omitted from sex education in the schools.

These points will be illustrated by citing some of the problems faced by the writer in preparing the official sex-education program now used in junior and senior high schools in Oregon.

Sex education is an integral part of the official health curriculum for grades 7 to 12 in the Oregon schools. There are no separate or special courses or units in sex education. For example, in the junior-high-school grades (7-9) both boys and girls receive instruction on an *elementary level* as follows: Unit I, Structure and Function of the Human Body includes a study of: (1) the endocrine system; (2) puberty and the development of secondary sexual characteristics; (3) the male and female reproductive systems; (4) menstruation and ovulation; (5) sperm development; and (6) human reproduction. Unit II, Personal Hygiene includes a study of: (1) the hygiene of the reproductive systems, including care and cleanliness of the genitals; (2) personal sex problems such as seminal emissions and masturbation; (3) development of heterosexuality; (4) sexual development and personality; (5) sex as related to the mental-emotional problems of adolescents; and (6) sex morals and conduct. Unit VII, Communicable and Noncommunicable Diseases includes a study of the venereal diseases.[3]

In the senior-high-school grades the above topics are studied again, on a more advanced level suitable to the needs and maturity levels of the boys and girls, as a part of the advanced health units for grades 10-12. In grade 12 the students take the unit, Mental Health and Family-Life Education, which, prior to graduation, provides more specific preparation for marriage, parenthood and family life.[4]

Sex Education Booby Traps

The official health guide prepared for Oregon teachers and administrators contains specific recommendations regarding (1) sex education topics to be included and (2) how to teach them. But equally important, it also contains specific recommendations officially advising school administrators and teachers to omit certain sex education topics from school curricula.[5] School people, for example have been advised that (1) birth control methods (2) VD

3. Howard S. Hoyman, *Health Guide For Oregon Teachers* (Grades 7-12). Ann Arbor, Michigan: Edwards Brothers Lithoprinters, 1946, Units I, II and VII.

4. Ibid. Units IX, X, XV and XVII.

5. Bibby, Cyril and H. S. Hoyman. "Sex Education for What?" Look, Vol. 15, No. 5, (February 27, 1951) pp. 70, 72-73, 75.

prophylaxis (3) sexual techniques and (4) sexual perversion *should not be included* as topics in the health units for either the junior or senior high school grades.

Why were these sex education topics excluded from the Oregon health curriculum? The point of view taken in Oregon regarding these excluded topics will, of necessity, have to be stated very briefly and somewhat dogmatically in this article.

Birth Control. In Oregon, as in other states, it would be illegal to teach birth control methods in the schools. But aside from legal implications, it was assumed that birth control is *not* a proper topic of instruction for boys and girls in the junior and senior high schools.

One basic principle of modern educational theory is that instruction should be based on existing needs. Why do teen-age boys and girls need information on methods of birth control? To include such instruction on birth control would place the Oregon schools in the position of: (1) suggesting to boys and girls that they do need such knowledge and (2) indirectly encourage its use in illicit sex experiences that would violate legal, moral and religious codes. Undoubtedly, such sexual behavior would have the possibility of great harm both for the boys and girls involved and for society. Consequently, for ethical as well as legal reasons, it was assumed that the Oregon schools should not bootleg birth control information to teen-age boys and girls as a part of sex education.

Venereal Disease Prophylaxis. In Oregon, as in all other states, some teen-age boys and girls contract gonorrhea, syphilis, or other venereal diseases through illicit sexual intercourse with infected persons.

Apparently, some professional and lay persons believe that educators should face these facts and include instruction in VD prophylaxis as a part of sex education for all junior and senior high school students. It is assumed that instruction in VD prophylaxis would be justified as a public-health-education measure because it would help to stamp out, or greatly lessen, VD infection among teen-age boys and girls and among men and women in the 20-30 year age group.

This line of reasoning should be carefully examined by educators interested in developing sound, defensible sex education in the schools. First, a critical analysis of VD education, including instruction in the use of VD prophylactics, conducted by the U. S. Military Forces during World War II, casts considerable doubt on

some of the values previously assumed for this type of instruction.[6] For the mere possession of technical knowledge about VD prophylaxis is not in itself sufficient to prevent venereal disease. Secondly, moral issues as well as public health problems are involved. Classroom teaching of methods of VD prophylaxis would be an open suggestion to all teen-age boys and girls that they could engage in illicit sex relations with the assurance that the school would help them to avoid venereal disease infections.

For these, and other, reasons VD prophylaxis was *not* included as a part of sex education in the Oregon schools. However, as indicated above, VD instruction is included in the Unit, Communicable and Noncommunicable Diseases.

Sexual Techniques. Common sense indicates that we should not stimulate adolescent boys and girls by a study and discussion of sexual techniques and then expect them to practice continence. Normal teen-age curiosity, abnormally stimulated by a study of books containing illustrations and detailed discussions of the "art of love" may be a factor in promoting sexual experimentation and promiscuity among boys and girls. Self-restraints, over a period of years, is difficult enough for adolescents in our culture without the schools making the matter worse through unnecessary sexual stimulation.

Thoughtful parents and even some intelligent students are beginning to ask: Why do teen-age boys and girls need specific information about sexual technique? What use are boys and girls supposed to make of this information in their daily living?[7]

It was assumed in Oregon that teen-age boys and girls do *not* need information about sexual techniques and therefore this topic was excluded from the official health curriculum.

Sexual Perversion. It was assumed that any possible advantages to be gained by including sexual perversion as a major topic for junior and senior high school students in Oregon, would be more that outweighed by the probability of harmful results with many students.

Questions about homosexuality and other types of perversion

6. Granville W. Larimore and Thomas H. Sternberg, "Does Health Education Prevent Venereal Disease?" American Journal of Public Health, Vol. 35 (August 1945), pp. 799-804. Herman N. Bundesen, Frederick Plotke and Henry Eisenberg, "Psychosomatic Approach to Venereal Disease Control," American Journal of Public Health, Vol. 39 (December, 1949) pp. 1535-1540. Koch, R. A. *Penicillin Is Not Enough.* New York: American Social Hygiene Association, Pub. No. A-799, 1950, 15 pp.

7. Emily Gardiner Neal, "Our Daughters Have Too Much Sex Education," Look, Vol. 13 (August 30, 1949), pp. 28, 30, 33.

will arise in classrooms where sex education topics are discussed. But Oregon teachers have been advised to tell students what they need to know about such matters without (1) catering to morbid curiosity and (2) going into details that might cause normal boys and girls to develop neurotic fears that they are perverts.[8]

In discussing *normal* sexual development Oregon teachers are urged to explain that perhaps most, if not all, children and adolescents go through certain developmental stages when they may *temporarily* exhibit various types of sexual behavior considered undesirable by society. Nevertheless, the vast majority of boys and girls achieve normal heterosexual development, expressed first in appropriate boy-girl relationships and later on in marriage and family life. The teachers also explain—*without going into lurid details*—that some persons do not develop in this way and are called sexual perverts or deviates. The students are further informed that some sexual deviates are of the criminal type and are exceedingly dangerous to small children, teen-agers and even to adults.

Sex Films No Substitute for Sex Education

Another type of problem we face in developing sex education in schools is indicated by an article entitled, "The Battle Over Sex Education Films" which appeared in LOOK Magazine.[9]

The film in question, Human Growth, was sponsored by the E. C. Brown Trust, Portland, Oregon and produced by Hollywood's Eddie Albert with the technical aid of various staff members from the University of Oregon, including the writer. It was planned primarily for use as a visual aid with the sex education phases of the health unit, Structure and Functions of the Human Body (which is studied by Oregon students in the seventh grade), and, for use in other appropriate units and subjects. The film was neither prepared nor intended as a substitute for Oregon's broad ongoing program of sex education.[10]

In a provocative article Leipold points out there are many problems to be faced in using sex films in schools:

"Is showing a movie such as the Oregon film 'education,' or

8. *Ibid.*, pp. 30 and 33.

9. Editorial Staff, "The Battle Over Sex Education Films," LOOK, Vol. 13 (August 30, 1949), pp. 34-36.

10. Howard S. Hoyman, *Developing Health Instruction in the Oregon High Schools.* Eugene, Oregon: University of Oregon, Part I, 1940, pp. 45-50 and Part II, 1942, pp. 153-170. *Health Guide Units for Oregon Teachers (Grades 7-12).* Ann Arbor, Michigan: Edwards Brothers Lithoprinters, 1946. Units I, II, VII, IX, X, XV and XVII.

> does it add to the confusion that already exists in the minds of the children viewing it? Does it, as charged by some people, excite the imagination, frighten the timid and incite the bold to action, or does it legitimately instruct? Is it, as some suspect, causing modesty to be a forgotten virtue by reducing sex to a mundane level?"[11]

The results—whether beneficial or harmful—of using sex education films in schools depends greatly upon their educational use. Sex films are best used by teachers with special training in sex education working under expert supervision. They should be used as an integral part of a broad ongoing sex education program planned cooperatively by the home, school, church and community.

We need to recognize clearly: there is no simple, economical, foolproof way of providing satisfactory sex education merely by showing students the newer sex films. When properly prepared and properly used sex education films are valuable visual aids. When improperly used—especially when used as a substitute for sex education—sex films may be misleading, or even positively dangerous in their effect on youth.

Both Sex Facts and Values Essential

As indicated earlier, sex education theory has been veering away from a sentimental-myth approach toward a more scientific-biologic approach, for a number of years. Some advocates of the scientific-biologic approach consider the main purpose of sex education in schools to be one of dispelling ignorance of the "facts of life" by teaching scientific sex information. For instance, in an article which appeared in the Oregon Health Bulletin, Weinzirl advanced the theory that the role of the school in sex education should be: (1) to teach only the scientific-biologic data which the individual needs to know about sex and (2) that these sex facts should be included only in biology courses, given preferably at the high school level.[12]

We need to be extremely critical of theories of this type. As may be noted above, Weinzirl's theory was not followed in preparing the official sex-education program now used in Oregon's junior and senior high schools; because such a narrow, factual type of sex education would have placed the Oregon schools in an untenable

11. Leipold, *op. cit.*, p. 34.

12. Adolph Weinzirl, "A Pattern for Social Hygiene Education," Oregon Health Bulletin, Vol. 21 (February 3, 1943) pp. 6, 10, 11 and 12.

position.[13] For one thing, his theory is based upon an obsolete educational principle—that schools exist merely to teach facts—which is no longer generally accepted by educational leaders. For on the contrary, one of the most fundamental principles of modern education is that: schools exist to help change the behavior and guide the personal development of boys and girls—not merely to impart specific factual information.

Both in the United States and in some foreign countries there is a growing concern over the relationship between sex education and the sex conduct of young people. Neal—a mother who is in favor of sex education in schools—states:

> "If the schools cannot explain satisfactorily just why boys and girls of sixteen and seventeen should remain chaste, it would seem safer to leave the entire subject alone."[14]

It is worth noting that one of the captions in this provocative article is entitled, "Are Schools to Blame for Delinquency?"[15] Mace develops the point of view that, despite freer talk about sex and franker sex education, chastity is still necessary if sex is to find its fulfillment at the truly human level.[16] Bibby, noted English authority, believes that conduct depends upon ideals, values, and inspiration as well as upon an understanding of scientific facts. He does not believe that the teaching of biologic sex facts to boys and girls will of itself insure acceptable conduct.[17] Two recent sex education pamphlets from Sweden indicate that Swedish educators are attempting to teach biologic sex facts in relation to ethical and religious principles.[18] Apparently even in Russia there is a new official attitude regarding sex education. According to published reports, Russia is now swinging definitely away from the scientific-biologic approach followed in recent years.[19] The new Russian

13. Bob Gilmore, "Sex Goes to School in Oregon," Better Homes and Gardens, Vol 26 (September 1947) pp. 41, 180, 182 and 184. Rex Putnam and Dorothy Massey, "Social Hygiene Education in the Oregon Schools," N.E.A. Journal, Vol. 25 (November 1948), pp. 498-499. Rex Putnam, "Social Hygiene in Oregon Schools," The Phi Delta Kappan, Vol. 29, (March 1948), pp. 303, 304.

14. Neal, *op cit.*, p. 30.

15. *Ibid.*, p. 30.

16. David R. Mace, "Is Chastity Outmoded," Reader's Digest, Vol. 55 (November 1949), pp. 26-30. (Reprinted from Woman's Home Companion, September, 1949, The Crowell-Collier Publishing Co., New York).

17. Editorial, "British Proposals For Sex Education," Journal of the American Medical Association, Vol. 130 (January 12, 1946), p. 83.

18. Kungl, Skoloverstyrelsen. *Handledning i Sexualundervisning For Larare I Folkskoler.* Stockholm, Sweden: Ivar Haeggstroms Boktryckeri A.B., 1945, pp. 10-11. Kungl. Skoloverstyrelsen. *Handledning I Sexualundervisning For Larare I Hogre Skolor.* Stockholm, Sweden: Katalog och Tidskriftstryck, 1949, pp. 7-8, 29-30.

sex education emphasis is now on love and sexual morality and not on physiological facts and sex problems as was formerly the case. Russian youths are now taught to value chastity and the family. Thus, even in Russia the attempt to divorce sex facts from ideals, values and moral guidance has not proved successful.

Experience both here and abroad indicates that a strictly scientific-biologic approach to sex education has definite, important limitations. Teaching the "facts of life" is not enough. For as Whitman aptly states:

> "Actually, the strictly biological approach to sex education is an escape from sex education. We duck the issue when we simply hurl charts, terms and physiological data at children—and at ourselves."[20]

Let's be realistic. There is no defensible way for the school to avoid facing the moral, ethical and religious issues involved in providing sex education for modern youth. When properly planned by the school, sex education is concerned with both facts and values. For even limited success will depend upon the school having a deep concern not only with topics such as venereal disease, reproduction and the sex organs but also with ideals, inspiration and conduct.

This makes the task of the school more difficult. It is comparatively easy to teach modern youth the "facts of life." But it is another matter to shape their attitudes about sex; change their habits of sexual expression; guide their conduct in boy-girl relationships; and to help prepare them for love, marriage, parenthood, and family life.

Yet the school must choose the hard road. It cannot assume that its job is done (1) merely by teaching youth a sex vocabulary and (2) by acquainting them with male and female reproductive structures and functions through the use of pets, charts, anatomical models and sex films. Nor can it cater to student interest and curiosity through topics such as birth control, VD prophylaxis, sexual perversion and sexual techniques. For these sex-education booby traps should be located, marked, and handled by the school with extreme care—*if at all.*

In providing sex education, the school—along with the home, church, and community—must accept its share of responsibility for guiding the ethical development of boys and girls.[21] Otherwise the role of the school in sex education may be restricted to what might

19. Editorial Staff, "Russia Takes a New Line on Sex," U. S. News and World Report, Vol. 27 (July 22, 1949), pp. 25-26.

20. Whitman, *op. cit.*, p. 186.

better be called "genital education." There are no short cuts in providing sex education for modern youth.

21. Hertel, F. J., et. al. *Sexual Behavior: How Shall We Define and Motivate What Is Acceptable?* New York: American Social Hygiene Association, Pub. No. A-796, 1950, 32 pp.

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AN OPEN LETTER TO YOU

Fellow Member:

Your membership in The American School Health Association identifies you as one having a special interest in the school health program. No doubt you appreciate the benefits of The American School Health Association membership, particularly those of the Journal with its valuable articles dealing with the various phases of the school health program.

Your Association is the only Association whose interest and efforts are devoted exclusively to the school health program. Through its publication, *The Journal of School Health*, the Association (you and the other members—doctors, dentists, nurses, health educators, and the others), attempts to be of assistance to you in helping solve your problems.

You can be of special service to your friends who do not belong to the Association if you will cut out the membership blank in this month's Journal, hand it to one of them who is interested, or should be, in school health and suggest that it would be the "best $3.00 ever spent."

Do it now! Every issue is important. If you need more application blanks, call on your Vice-President in Charge of Membership. If you prefer, just send him the names and addresses of persons you would like to recommend for membership and he will extend them a personal invitation.

We can *double the membership* if *you* each get a new member!

Yours for a better school health program and a bigger and better American School Health Association.

GUY N. MAGNESS, M.D.
President

J. KEOGH RASH, Hs.D.
Vice-President in Charge of Membership
Indiana University, Bloomington, Ind.

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School Liability,—R. R. Hamilton, Safety Education, Dec., 1952, p. 2

An excellent brief discussion of the liability or non-liability of school districts and of school personnel under varying conditions for accidents happening to school pupils and school personnel. Locations, types and activities in which engaged are discussed.

This or similar material should be read and pondered by every school employee.—*C. H. Keene.*

DEVELOPMENT OF SCHOOL HEALTH SERVICES

CHARLES H. KEENE, M.D.
University of Buffalo

"The school health program is made up of the procedures that contribute to the understanding, maintenance, and improvement of the health of pupils and school personnel, including Health Services, Health Education, and Healthful School Living.

School Health Services are the school procedures which are established to:

a. appraise the health status of pupils and school personnel;
b. counsel pupils, parents, and other persons involved concerning appraisal findings;
c. encourage the correction of remediable defects;
d. help plan for the health care and education of handicapped children;
e. help prevent and control disease;
f. provide emergency care for the sick and injured."[1]

When and where did we start on such an ambitious program, and how near the goals have we approached?

The earlier efforts toward direct betterment of school health conditions had in them a large element of school sanitation. The earliest regulation, that of Paris in 1833, charged that these visitors sent into the schools were to "examine the localities." They were, first of all, sanitary inspectors, and only later did emphasis shift largely to the children. As we shall see later when we examine the early phases of the School Health Services in this country, in several cases the earliest duties prescribed for the person employed was sanitary inspection of the school plant and of the conditions in the school plant which might affect the health of the pupils.

This thought very properly persisted, and in many of the earlier regulations put into effect by Boards of Education in this country we find this insistence on investigation of cleanliness, ventilation and temperature. As far back as 1880 the Los Angeles Board of Education rules—the city then had a population of 11,183 people, 3200 of them in the schools—provided that, "Teachers shall give vigilant attention to the ventilation and temperature of their school rooms. At each recess the windows and doors shall be open for the purpose of changing the atmosphere of the room."[2] In

1. Report of the Committee on Terminology in Health Education, American Association for Health, Physical Education and Recreation, and American School Health Association, Journal of School Health, Vol. XXI, No. 5, May 1951, p. 170.
2. Goffin, John L. "School Health Marches On." *The Los Angeles School Journal*, 35:2, p. 12; October 15, 1951.

Boston, thirty years later, a rule was adopted requiring that windows in classrooms be opened four times daily. The same meeting of the School Committee ordered the installation of bubbling fountains "to test their efficiency." In Minneapolis a constant skirmish during the winter of 1909-1910 was carried on between the Foreman of Buildings and the Director of Hygiene, the Director pushing for opening windows.

Such is the beginning of the present complicated and explicit school building codes designed to make school buildings healthful and safe. And even yet in most regulations issued for the guidance and control of school health services, rules are found requiring frequent and routine sanitary inspections. Not until recently, however, has there been published a badly needed and extensive set of directions as to how the school custodian may perform his duties satisfactorily.[3]

As far back as the fifteenth century the great school masters and philosophers realized that a child took a body to school with him as well as a brain. They wrote urging that some provision be made for advice, protection, and activities to strengthen those bodies, and to make them more efficient servants of the brain; and the programs of their private schools were broadened to include health instruction and physical outdoor activities.[4] Mercurialis, da Feltra, and others in Italy; Martin Luther, Camerarius and Comenius in Germany; Rabalais and Montaigne in France; Sir Thomas Elyot, Mulcaster, and John Milton in England; all advocated more attention to the body health. And of course in classical Greece, the education of youth was emphatically the physical.

Physicians

It was a long time after these early leaders in education before any concept or action regarding health appeared in schools supported by public funds. France made the start. The law of June 28, 1833, charged school committees of cities and towns with the duty of keeping school houses clean, while in 1837 the female supervisors of maternal schools (kindergartens) were instructed to watch over the health of little children. In Paris it was ordered, in 1842 and 1843, that every public boys' and girls' school be visited

3. Linn, Henry H., Helm, Leslie C., and Grabarkiewicz, K.P. *The School Custodian's Housekeeping Handbook.* Bureau of Publications, Teachers' College, Columbia University. 256 p.

4. Leonard, Fred E., and Affleck, George B., *The History of Physical Education.* Philadelphia: Lea and Febiger, 1947. p. 49 et seq.

by a physician to "inspect the localities" and the general health of the children."[5]

This action in Paris was the pathbreaker, although it was forty years before other cities of France followed the trail. Some went further. Havre, in 1875, established the first free public dispensary for children.

Other cities in Europe followed the French examples. In Brussels (1874) there was more definiteness. Physicians appointed were required to visit schools three times per month. If that seems to the reader to be a most inadequate standard, just remember that this was twenty years—a full generation in a time of early marriages—before any city in the United States had any routine visiting of schools by physicians.

Dentists and oculists also were appointed to visit the pupils regularly.

In Wiesbaden each child was examined on entering school and in the third, fifth, and eight year of school. Machinery was set up for the detection of communicable disease, and for inspection of school buildings and surroundings. In 1898 this plan was generally adopted throughout Germany.

The examination was complete; the findings were entered on a report blank and *this accompanied the child from grade to grade.** Height and weight were recorded twice a year, by the teacher. The need for regular medical care, if any need, was indicated. The physician advised the teacher of the needs of the child. Parents were notified of defects requiring medical attention. The school physician, note well, was not to give treatment.

Some modification of this Weisbaden plan was adopted before 1900 by a large number of European cities: Roumania, in 1899, decreed that all school children be examined at least once each year.

From the European countries the effort better to guide and protect the health of school children spread to other continents. In England a national Medical Inspection Act went into effect January 1, 1908.

By this time Argentina had set up a complete procedure providing for vaccination of school children, examining sanitary conditions, visiting sick pupils in their homes, checking communi-

5. Gulick, Luther Halsey, and Ayres, Leonard P. *Medical Inspection of Schools.* New York. Russell Sage Foundation, Charities Publication Committee, 1908. p. 18.

*Similar rules were in effect in this country by 1910.

cable disease, giving health instruction and free medical advice to teachers and pupils.

Where had the schools, parents, educational and health authorities of our country been during this sixty years of progress in other parts of the world?

It is now 1894. Serious twin epidemics of diphtheria and scarlet fever are raging in Boston, Mass. As is usually the case with these diseases, a large proportion of the cases were among children of school age.

While in 1892, in New York City, a Medical Inspector of Schools was appointed by the "Sanitary Superintendent," and, although in Boston the need of medical inspection of schools for the purpose of detecting contagious and other diseases among school children was brought to the attention of the Mayor and City Council and an appropriation actually secured in 1892, it was not until November 1894, that the Board of Health of Boston appointed fifty physicians for this purpose, and school medical inspection on an organized basis was actually under way in the United States.

The results were gratifying. The Health Commissioner, Dr. Durgin, at the end of the school year 1894-1895 reported a great reduction in the number of cases of diphtheria and scarlet fever among children of school age.

While the rapidly spreading use of antitoxine for diphtheria, which, although not a preventive to the extent that the later toxin —antitoxine and toxoid have been, probably did have some influence by shortening the duration of the communicable stage and probably having a brief immunizing effect, and the opening of of the new wing of the Boston City Hospital for the care of communicable diseases were potent influences in the situation, the publicity given the medical inspection and its reported results did cause other city health departments to set up similar procedures and to appoint medical inspectors as follows: 1896, New York, 134 inspectors; 1897, Chicago, 9 inspectors; 1898, Philadelphia, 15 inspectors.

This early primitive but effective school medical inspection emerged into a physical examination of all elemtary school pupils largely through the urgence of school teachers and administrators. In the average school year only about 2% of the children—excluding pediculosis—had any communicable disease. The argument was that something should be done for the other 98%. The teachers, seeing these children each day, realized that a large percentage of them were laboring under severe handicaps because

suffering from faulty conditions of eyes, ears, nose and throat, teeth, and some of them from dangerous and possibly communicable chest conditions.[6]

A common approach was through the medium of state laws: by 1908 four states had passed laws making it compulsory for Boards of Education to carry out some phase of school physical examination.

The Legislature of Connecticut—1899—required the testing of eyesight in all public schools of the state, the State Board of Education to furnish test-cards and blanks and instructions. The superintendent, principal or teacher was required to test the eyesight of all pupils during the fall term, and to notify in writing the parent or guardian of every pupil who had any defect of vision and the nature of the deficiency.

In New Jersey, a statewide statute became effective in 1903. It authorized—permitted but not required—boards of education to employ competent physicians or medical inspectors of schools, and defined their duties.

A year later Vermont passed a law requiring the examination annually of the eyes, ears, and throats of school children.

The Legislature of Massachusetts passed a mandatory law in 1906 providing for medical inspection throughout the Commonwealth. Every town and city was required to establish and maintain a system of medical inspection for the detection of contagious diseases, and provided for physical examinations annually by these physicians, and for eyesight and hearing tests by the teachers each year.

By 1908—outside of Massachusetts, where, as we have just seen, medical inspection was required in all school systems—medical inspection of one sort or another was being carried on in seventy cities, and under various types of financing and supervision—Boards of Education, Health Departments, and volunteer agencies, such as Women's Clubs, Visiting Nurse Associations, and County Medical Societies.

From the types of examinations specified—in most cases including vision and hearing tests—we see the growing concept of the educational need and value of these physical examinations.

Since this era—before 1910—almost all states have passed special statewide laws, and in them also we see this trend of

6. Keene, Charles H. Suggestions to Teachers Regarding Contagion, etc., Department of Hygiene and Physical Education, Public Schools, Minneapolis, Minnesota, October 1909.

emphasis on the educational value of such health supervision.

One of the earlier and more farsighted developments has been in the state of New York. Between 1860 and 1913 the health services (medical inspection), health instruction (hygiene), physical education and recreation were mostly a local responsibility except for health instruction. For this area, in 1884, the General Assembly enacted a law requiring instruction in health teaching with "emphasis on instruction regarding the effects of alcoholic drinks and other narcotics." The law requires the use of a suitable textbook and of frequent tests.

The Medical Inspection Act of 1913 and the Physical Training Law of 1916 vested authority in the Board of Regents (State Board governing the organization and administration of the schools). On February 1, 1915, William A. Howe, M.D., became state Medical Inspector of Schools, and on July 1, 1916, Thomas A. Storey, M.D., became state Inspector of Physical Training under the Military Training Commission. This latter was largely a war measure. State Certification of teachers of physical education became mandatory.

The New York State Division of Health and Physical Education was created in 1928 within the State Department of Education, and the Bureau of Medical Inspection became the Bureau of Health Service and included physicians, nurses, dentists, and dental hygienists in this newly organized Division. Also in the Division were the Bureau of Physical Education and Recreation, and the Bureau of Health Education.

The Bureau of Health Service was removed from the Division (December 1950) and placed in the newly formed Division of Pupil Services and Adult Education. This apparently was an effort to separate the teaching activities, physical education and health education, from services. It will have one advantage, recommended in the Regents Study published fourteen years ago, the bringing into closer relationship the work of the Bureau of Handicapped Children and the Bureau of Health Services.

This Bureau of Health Services is highly organized, having a staff of nine; physicians, dental hygienists, dentists, and nurses, and there being this large group of workers in the schools:

Full time physicians	34
Part time physicians	1200
School Nurse-Teachers	1100
Dental Hygiene-Teachers	309
Dentists	230

This is some expansion from the one Medical Inspector appointed in the City of New York in 1892. What will the next sixty years bring us as a service for the better health of children?

Pennsylvania—In 1920 a Bureau of Health Education was set up. This was implemented by the appointment of a Director and supervisors. The Bureau included physical education and athletics; health education with emphasis on nutrition; and health services—activities of physicians, nurses, clinics, and special classes for the physically handicapped. During the depression decade this effort disintegrated.

At the present time, the outstanding factors are model laws for health service:

1. The "School Health Act," which makes compulsory the medical and dental examination of every pupil in an odd numbered grade "in any school within the Commonwealth." The number of examinations per hour and the rates of pay are set, and the state reimburses the school districts the amount spent.

2. Provision, at the expense of the Commonwealth, for local Boards of Education to employ school nurses and dental hygienists, and the requirement that each school district of the first, second, and third class set up an advisory health council, and in other ways strengthening the School Health Act.

3. Provision of state funds to finance medical and dental treatment for the child whose parents cannot afford treatment.

4. Permissive legislation for medical and dental examinations of children prior to enrollment in school.

This is development—requirement for examination, state financed, and treatment at state expense when necessary.

United States—Although the United States Bureau of Education—now the United States Office of Education—exhibited interest in physical education almost from its inception in 1867, and mentioned health education as early as 1887, it did not, until the Commissioner's Report of 1898-1899, present any discussion of "medical inspection." The Report of 1903-1904 has a Chapter on Sanitary Legislation affecting the "Schools of the United States." In 1909 a Bulletin was published on "Daily Meals of School Children." In October 1911, Fletcher B. Dressler, Ph.D., became Specialist in School Hygiene and Sanitation.

It was not until the outbreak of World War II that emphasis on school health services became noticeable in the Bureau. Previous to that time, health education and physical education were the chief interests. By this time school health services began to get

more emphasis, and physicians appeared on the staff.

So, over the years, by the simple process of realizing a need and trying to meet it, the school physician has traveled a "long, long trail" from being a person assigned to "examine the localities" and being an inspector seeking out children having communicable diseases, and has entered the larger field of examiner for handicaps that interfere with the health, growth, and educational progress of the child, until now we find him the friendly guide and health educator of pupils, the counsellor and leader of the parents to better child health supervision, the consultant in child health to the teachers, and the interpreter to Superintendent and Board of Education of better school health programs.[7]

As we follow these changes we realize that this person is no longer a mere sanitary inspector or a medical inspector, but a health supervisor—a major element in a broad program of better health and greater happiness for our children.

This is an educational concept and procedure, made possible by the facts that modern buildings and a trained custodial staff have enormously decreased the burden of sanitary inspection in many schools, and that—in communities having an efficient health department that has brought about the innoculation of children long before they have reached school age—the great killers among the communicable diseases have been largely eliminated.

National Associations—In England there was organized, before 1908, a National Society of Medical Inspectors of Schools. In France there was published by the Association of School Medical Inspectors a Journal entitled "La Medicine Scholaire"; the first issue, Vol. I, No. 1, was February 1908.

In this country the first similar organization was the American School Physicians' Association, formed in 1927. It began to issue a Journal—the School Physicians' Bulletin—in 1930. Six years later this group became the American School Health Association with a much broadened Constitution and By-laws, admitting to membership any school health worker having training in the basic sciences, and the Bulletin became The Journal of School Health.

School Nurses

School health services have progressed a long ways since the Minnesota State Commissioner of Health, in 1907, said that "employment of school nurses . . . would prove pernicious."[8]

7. "The Physician's Manual for Los Angeles School District." *Los Angeles City Schools, School Publication,* No. 390, 1943.

8. Gulick and Ayres. *op. cit.* p. 179.

The work of the medical inspector—school physician—had been going on for many years in countries outside the United States before, in London in 1893, Miss Amy Hughes, the Superintendent of the Nursing Association, made the first visit of inspection by a nurse into the schools. Liverpool, England, in 1895, followed the example of London, and school nursing was started in some of its Board Schools.

In the United States, eight years elapsed from the start of organized medical inspection in the public schools of Boston to the appointment of the first school nurse to the schools of New York City in 1902. Other cities soon followed: Los Angeles, in 1903; Philadelphia, in 1903; Boston, in 1905.

While in Chicago the crippled children in four public schools were being visited by nurses as early as 1901, it was not until 1906 that the service was made more general when Miss Jane Addams, through Hull House, at the request of the Board of Education, supplied three nurses for a period of three months.

In Pueblo, Colorado, in 1909, school nursing was inaugurated under the direction of the Board of Education. Lina Rogers Struthers, R.N. reports this a new experience;[9] the cooperation of the teachers was more enthusiastic and effective than under other types of control, and the work was along broader lines, covering more than efforts to control communicable disease.

In Canada the introduction of nurses into the schools seemingly started at Montreal in 1906. Other Canadian cities soon followed; Hamilton, 1907; Winnipeg, 1909; Toronto, 1910; Vancouver, 1910.

In practically every case, these first school nurses were financed by Visiting Nurse Associations, Settlement Houses, or similar volunteer organizations. Only after demonstration of the value of their work did the municipality take over the expense. Usually the body that did this was the Board of Education, or, less frequently, the Health Department. In the United States, the major cause of the start being the desire to control communicable disease, the controlling group in the earliest cases, and these in the large cities, was the Board of Health.

The school nurse came into the schools originally because school and community leaders realized that, with a large proportion of children, the huge sums spent in efforts to give every child a good education were being blocked, because these children

9. Struthers, Lina Rogers. *The School Nurse.* New York: G. D. Putnam's Sons, 1917. p. 34.

were physically unfit to profit by the educational procedure. Faulty vision, diminished hearing, undernourishment, tuberculosis, skin diseases and infestations, and downright filth were blocking the way.

The first nurses were sent into the schools to treat children with minor disease, infestations and infections, at the schools, and to visit the homes to interest and instruct parents how they might, and should, carry on necessary treatments. This was almost entirely a treatment program.

It is now believed by leaders in educational administration that treatment of physical disease is not the function of the schools, except in types of handicaps where the treatment is so prolonged or so expensive that the average parent could not finance it. But for these there are organized clinics to which the child is sent. Only rarely is the treatment brought to him.

As other local units took over treatments, the nurse was relieved of this time consuming procedure. She had opportunity to become more definitely the coadjutor of the physician, taking over much of the efforts to control communicable disease, assisting him in making physical examinations, which has become a health examination and a health education conference participated in by physicians, nurse, child, parent, and, often, teachers. She has become a fellow worker with the teacher in health education, is interpreter to principal, teachers and parents of the need of certain health procedures, such as immunizations against communicable disease, and an educator concerning the need of such health regulations as those relating to the pasteurization of milk, clean restaurants and food shops, the provision of pure water and safe sewage disposal.[10]

Often the nurse teaches some sections of the health education course, particularly such special efforts as first aid, and home hygiene and care of the sick. This is a long way beyond the first school nurse efforts of treatment of minor disease, chasing perambulating pediculi, and getting and keeping children clean at an era when the schools had no facilities for cleanliness.

She has become an educator. The state of New York has recognized this. There, by law, she is a school nurse-teacher having to meet definite educational standards to qualify for employment, and receiving thereafter the same protection as the classroom teacher; tenure, sick leave with pay, retirement privileges, and she becomes a member of the New York State Education Association.

10. Keene, Charles H. *The Physical Welfare of the School Child.* Houghton, Mifflin Company, Boston, 1929.

The University of the State of New York (the State Department of Education) has issued a Bulletin for her instruction, and guidance, and for the information of the School administrator.[11] By 1952 there were employed in the state 1100 school nurse-teachers.

This Bulletin devotes 141 pages to discussion and explanation of the duties of the School Nurse-Teacher, covering such areas as Care of Emergencies, Communicable Disease Control, Assisting with Health Examinations, with Follow-up to Secure Treatment of Handicaps, Supervision of Pupils with Serious Health Problems, High School Nursing, Rural School Nursing, The Nurse-Teacher's Part in Recording and Reporting, and Problems in Interviewing.

The scope of this educational and health material indicates that school nursing has become a profession within a profession demanding special and intensive training. It is no longer a part time sketchy performance, and part time service in the schools, by nurses engaged in other phases of health service, is usually an extremely inadequate service, and almost always lacks educational content to the extent that teachers, pupils and parents need.

11. Health Educaation Series. Bulletin No. 5. Albany, N. Y., The University of the State of New York, 1949.

To be Continued

* * * * *

Los Angeles Health Education Journal,—We welcome to the fold a new editor of one of the best journals concerning itself with Health Education in the Schools. Blanche G. Bobbitt, Ph.D., a graduate of the University of Southern California, holder of A.B. and M.S. degrees, with majors in chemistry and biology and a minor in physics, and a Ph.D. from the University of Southern California School of Medicine, has become editor of the Health Education Journal, published by the Health Services Branch of the Los Angeles city schools.

She has had extensive experience as a teacher and supervisor in the field of general science, physiology, biology, physics, chemistry, and health education. In 1951 she was honored by being appointed Educational Supervisor, Radiological Services, California State Office of Civil Defense. This past summer she was appointed a member of the official United States delegation to the 15th International Conference on Public Education at Geneva.

Dr. Bobbitt succeeds Dr. John L. C. Goffin, who has been the distinguished and capable editor of that Journal for a number of years and has recently retired from active service.

Congratulations to the new Editor and to the Health Education Journal.—*C.H.K.*

COMMITTEE FOR INTER-PROFESSIONAL RELATIONS SCHOOL HEALTH SECTION—APHA CLEVELAND — 1952

During the past year, lists of committee and section chairmen of represented organizations were circulated for purposes of preventing duplication of effort and securing cooperation whenever possible.

In two specific cases, overlapping committees and sections were resolved. Suggestions for cooperation with specific sections or committees of these three organizations were sent to individuals who might effectively use them.

It is apparent that in the three related organizations—the School Health Section of the American Public Health Association, the American School Health Association, and the American Association for Health, Physical Education, and Recreation—similar problems and projects arise which might be effectively considered as joint projects or efficiently delegated to other organizations. An increasing number of such instances may result as possibilities occur to the membership.

In addition to the three large groups concerned with school health problems, the National Conference for Cooperation in Health Education and specific committees in other national organizations are also working in this area; namely, the Committee on Child Health of the American Public Health Association, the Health Committee of the National Congress of Parents and Teachers, the Committee on Child Health of the American Academy of Pediatrics, the Joint Committee of the NEA—AMA on School Health Problems, the Health Committee of the American Home Economics Association, Committees of the Society of State Directors of Health, Physical Education, and Recreation and the Cooperative Committee on Elementary School Health (American Association for Health, Physical Education, and Recreation; Association for Childhood Education International; Elementary School Principals; and, American Association of Colleges for Teacher Education).

In view of this widespread activity in school health *it is recommended that*:

1. An attempt be made to secure a complete list of organizational projects relating to school health which are now underway. Such a list might serve to prevent duplication and promote coordinated effort. A complete report of projects underway might be published by this committee.

2. This committee be enlarged to include representatives of the Society of State Directors, the National Conference for Cooperation in Health Education and specifically designated representatives from special committees of other organizations which are concerned with the school health problems.

Respectfully submitted,

Charles Keene, M. D., representing the American School Health Association
Charles C. Wilson, M. D., representing the School Health Section, APHA
Elizabeth S. Avery, Chairman, representing the AAHPER

* * * * *

REPORT TO THE AMERICAN SCHOOL HEALTH ASSOCIATION

From: C. E. TURNER
ASHA Representative on the National Conference for Cooperation in Health Education

The annual meeting of the National Conference for Cooperation in Health Education was held early in 1952. Over 50 national agencies, official and voluntary, are now represented in the National Conference. A report of the conference has not yet been issued, but will be available within a few weeks and will report several resolutions adopted by the conference session.

The last annual meeting was devoted mainly to the subject of Teacher Education and it was held in conjunction with one of the member agencies namely, the American Association of Colleges for Teacher Education.

The conference divided into three working groups concerned with Coordination, Interpretation, and Administration, respectively.

Perhaps the outstanding accomplishment of the National Conference during the last year was the production of "a handbook for School Administrators," which describes the purpose, program, materials, and organization of each of the 62 member agencies.

It has become a practice for the respective member agencies to send to the other organizations within the National Conference a copy of new materials as they come off the press. These materials are sent to the editor of the *Journal of School Health* and are commented upon when they are particularly pertinent to our membership. The National Conference also provides an opportunity through which the activities of our Association may be made known to other health education groups throughout the country.

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EDITORIALS

Change and Development,—Recently the Editor has had occasion to refresh his memory—and to learn some details not previously known to him—concerning the beginning and growth of the school health services.

Starting with a desire to improve the school environment; and progressing through efforts to control communicable disease among school children; moving on to physical examinations designed to find and ultimately to improve physical and mental handicaps; to correct or control those handicaps; and moving to thorough health examinations and investigations and advice in which conference participate physician or dentist, nurse, teacher, administrator, social worker, and parent we have travelled a constantly advancing road to better procedures.

The advancement has not been only on the part of the physician and dentist, but the nurse has travelled also a path beset by more and more complicated problems. Starting in some cases, on a program of cleansing filthy children of the dirt and infestations they brought from home; taking on more and more duties relating to efforts to control communicable disease; and progressing to become coadjutor to the physician and dentist, adviser to school administrators and teachers, teacher to pupils and parents in health matters; and now arriving at her present status as nurse—

teacher, so recognized in law, professional standards, and acceptance in school and community, we have a professional educator and in up to date schools recognized as one.

While there have been numerous efforts by prejudiced people to prevent development of a real school health program, Boards of Education, Courts and Legislatures have generally been ready to support advances. The welfare of children has loomed larger than the ignorance and prejudices of the obstructionists.—*C.H.K.*

* * * * *

Cleveland,—At the Cleveland meeting of the American School Health Association, as a part of the Program at the Banquet Session, Wednesday evening, October 22, delightful notice was taken of the pending retirement, as editor, of Charles H. Keene, M.D., Editor-in-Chief of the *Journal of School Health.*

Miss Gertrude E. Cromwell, Past President of the Association and Assistant Editor of the *Journal,* spoke appreciatively and gratifyingly of the service of Dr. Keene to the *Journal* and to the Association. A reply tracing the development and expanding circulation of the *Journal* during the sixteen years that Dr. Keene has been Editor-in-Chief was made by him. At the conclusion a fine pen and pencil set was presented to the retiring Editor-in-Chief and a life Fellowship in the Association.

I wish to take this opportunity to thank the Members and Fellows of the Association, and particularly, the Members of the Governing Council, past and present, who have given such wholehearted support to the *Journal* during those years, and have been such pleasant people with whom to serve.—*Charles H. Keene.*

* * * * *

"Hygiene"?—In the Catalogue of one of the State universities there appears a description of professional courses in Physical Education: "Hygiene 102 Lectures on the Theory of Basketball, 12 hours; Hygiene 103—Laboratory Practice in Basketball, 12 hours." There followed more "Hygiene" courses in football, hockey, etc.

One of our most respected older leaders in the field of Health and Education feels: "These are not courses in the hygiene of these games." Should one infer that the head of the department either does not know the meaning of "Hygiene" or wishes (Heaven forbid) to deceive the students. The use of the word laboratory is interesting. Is the word used to put these sports on a higher plane than is usually the case. "Such courses have a place in the training of teachers in the field of Physical Education, but why try to make students and administrators believe that they are 'Hygiene'—the science of health?"—*C.H.K.*

ABSTRACTS AND NOTES

Tuberculosis—Mortality vs. Morbidity;—The trends in these persistently diverge and cause much concern. The downward trend in mortality has recently become accelerated and is now estimated at 16 per 100,000.

Morbidity, however, appears to be seriously increasing. For 1950 the morbidity rate was 20% higher than in 1940. It is now estimated that there are 1,200,000 active and inactive cases of tuberculosis in the United States, 400,000 of them active. The National Tuberculosis Association figures indicate that 40,000 of these are sputum positive cases living at home.

There are 240,000 unhospitalized tuberculous Americans. Have we become lax in our procedures with these cases after discovery? Have we become obsessed with the idea that taking an X-ray of the chest is our only obligation in regard to tuberculosis? What seem to be the causes of our predicament?

1. Overconfidence in the complete effectiveness of available chemotherapeutic agents,

2. More cases are being allowed to "cure" at home,

3. More are treated with drugs and as ambulants without the needed expert close guidance and supervision of specialists,

4. Has the use of drugs resulted in arrested tuberculosis that is potentially active and with poor supervision of daily habits results in reactivation?

The above is a brief summary of a Special Article by Edgar Myer, M.D., of the City of New York, appearing in the New York State Journal of Medicine, December 1, 1952, page 2919.

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